MEMORANDUM

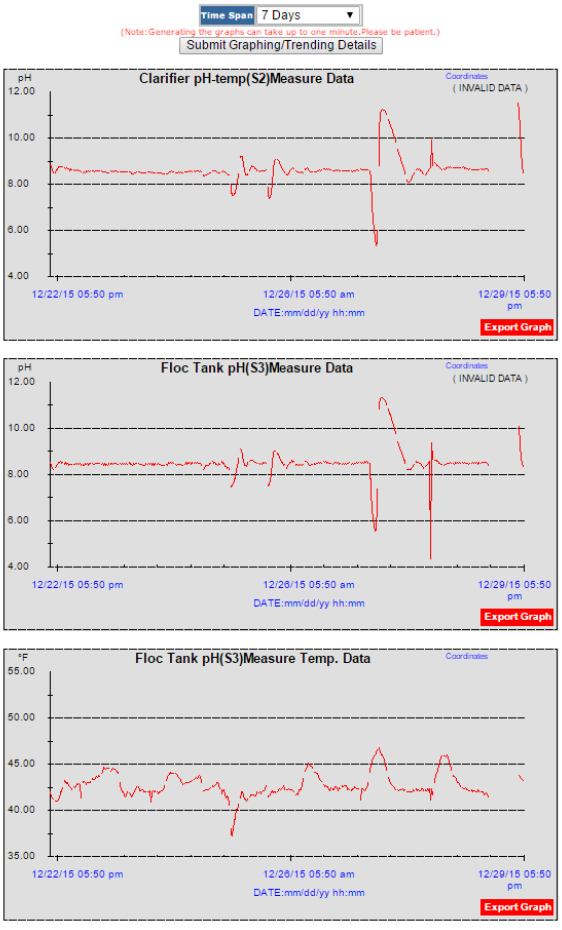
DATE:	December 29th, 2015
FROM:	Joe Harrington
SUBJECT:	December 2015 Weekly Progress Report @ Gold King
TO:	Steven Way

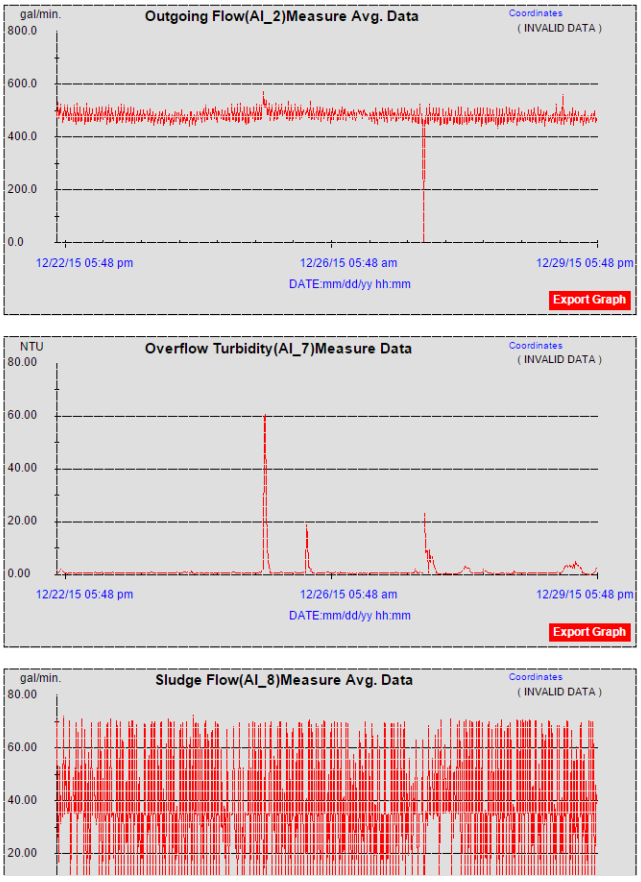
Project:	Gold King Interim Water Treatment Plant	**Reporting Period:**	December 21 - 27
Location:	Gladstone, Colorado	**Report No.:**	2
Prepared for:	Emergency Response Unit – US EPA Region 8		

I. General Operations Summary:

IWTS Function/Upsets

- The following graphs provide trending information from the previous 7 days of the Flow Circuit and Lime Circuit PLC's at the Gold King IWTP. Over the reporting period (12/21 – 12/27 inclusive) Alexco treated 4.9 million gallons at an average of 525 gpm, resulting in 40 gpm to the sludge storage system and 485 gpm to the discharge line.





- Alexco experienced a Webmaster failure from 6:30am to 1:00pm on 12/29/2015. The on-site operators were able to identify a short in the line from the pressure transducer in the Gladstone Pond. The electrical short circuit has been isolated and removed from the system. During the upset, the system operated successfully on manual until the issue was resolved.

- As shown in the pH graphs above, a plug developed in the intake to the peristaltic lime feed pump for a duration of less than 3 hours on 12/26. The obstruction was immediately identified and the on-site operator removed the obstruction in the feed line and restored lime slurry flow. As a result of the normal operation of the automatic lime slurry feed system, the concentration of the lime in the lime reagent feed tank overshot the target and the pH of the treated water spiked to pH 1.5-2.5 standard units greater than the setpoint (pH 10-11.5). The section of line from the tank to the intake to the peristaltic pump has been identified as requiring higher frequency preventive maintenance, which will be conducted biweekly.

- A large snow storm hit on 12/24 and created very difficult access conditions through 12/27. The intensity of the storm can be deduced from the decrease in the temperature observed in the feed to the plant as large amounts of snow fell into the open pond feeding the plant. This also caused intermittent partial blockages of the feed intake from the pond to the plant resulting in increases in the pond level of about 0.15 psi or about 3 inches of head. The treatment dosing system responded well throughout the storm to the variable flows to maintain quality of discharge as indicated by pH, but the reduced flow rate likely contributed to the development of the obstruction in the lime feed line in the immediately preceding bullet. We believe that the combination of the preventive maintenance on the feed line (reaming out the intake port to the feed line) and if necessary reducing the diameter of the feed line, will be sufficient actions to maintain acceptable quality of the discharge.

- Alexco attempted to switch over to the more robust compressor system (dual compressors with larger pressure vessels) for providing air pressure to the plant, but experienced several circuit overload conditions (tripped breakers) which caused the three turbidity events shown on the graphs. These events resulted in reduction of sludge flow to the sludge storage area which were limited in duration. The larger compressor system has been taken off line until grid power is established and it will be restored at that time, providing higher quality air to the pneumatic sludge control system.

Communication System Function Status

- EPA(ER) has asked Century Link for a quote to provide internet service to the IWTP, but the status of that request is unknown.

Facility or System Related Work, including Repairs & Completions

- Precision Electric is completing final system hookup to grid power.
    - An electrical inspector from Durango is scheduled to review the service on 12/30/15. A scheduled inspection on 12/23/2015 was canceled due to a snowstorm on Coal Bank and Molas Pass.
    - Assuming the service installation passes inspection, San Miguel Power is scheduled to connect the site to grid power on 12/31/2015.
- In addition to grid power connection, Precision Electric will make the following improvements:
    - Interior Lights, 2X Exterior Lights, Heaters, Ventilation System, other misc. improvements
    - Target date for completion of electrical installation is 1/3/2016.

II. Identified Problems, Causes, and Solutions (Planned or Implemented)

- Repeated Genset Failure: Alexco currently has two electricians at Gold King who are diligently working to transition the system to grid power with an automatic transfer switch for genset back-up.
- Preventive maintenance schedule for cleaning the intake port to the feed line from the lime slurry makeup system
- Reduced diameter of the feed line from the intake port to the dosing pump (planned, January 12/13 scheduled maintenance).

III. System Inspections – Specific elements inspected and finding

- The QA/QC box plot analysis of the testing results indicates that the probes deviate beyond acceptable threshold limits around 4 days without cleaning, therefore cleaning has been conducted 3x weekly and will continue at this frequency unless the box plot analysis indicates more frequent cleaning is necessary. Box

plot analysis will be conducted monthly. The Project Director will determine if the replacement of the probes is necessary from inspection of the testing results.

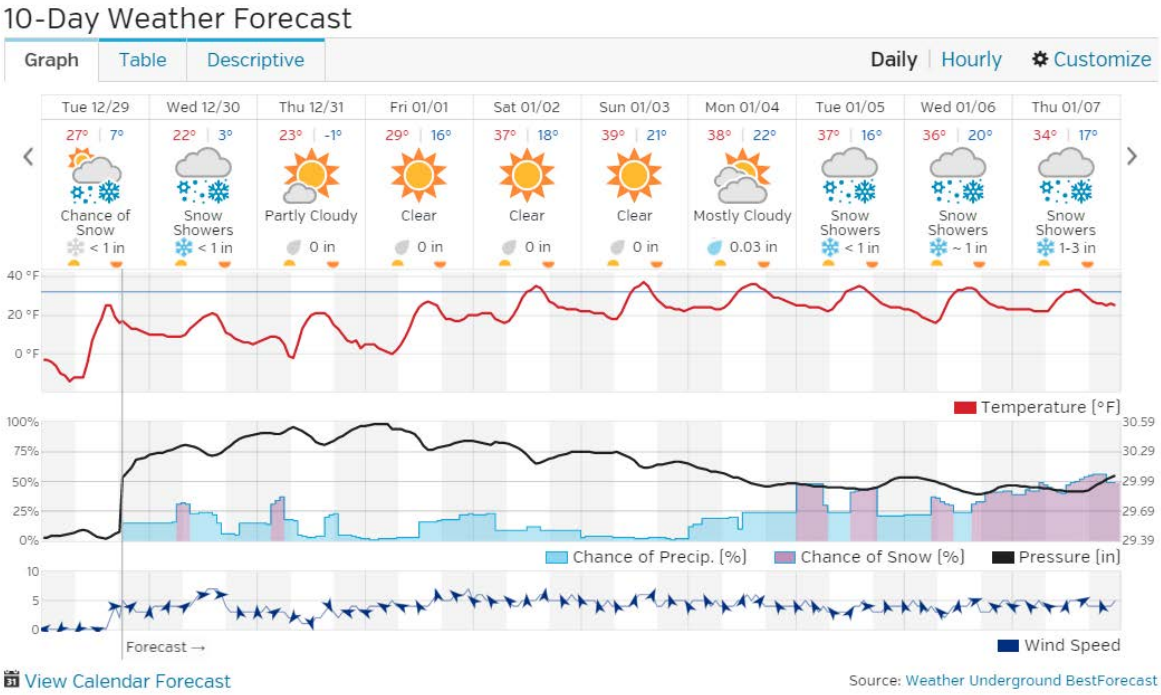
IV. Site Status

Personnel and equipment onsite

- Alexco currently employs two FTEs who live in Silverton that oversee operations at Gold King IWTP.
- Alexco has rented a skidsteer/blower (see Photo 2) to support snow removal throughout the winter. Alexco has used this equipment to clear Jane Legge's driveway on two occasions at EPA's request.
- Alexco project manager and project director have inspected the site during this reporting period to develop this weekly report and conduct the necessary evaluations of the treatment system.

Weather conditions

- Weather Underground Report for Silverton, CO (12/29/2015 – 1/7/2016)



Site Photographs

Photo 1 – Taken 12/29/2015, view of IWTP from upper road.

Photo 2 –Alexco's snow removal equipment.

Photo 3 –Snow removal from Jane Legge's driveway. Taken on 12/29/2015.